

TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

February 24, 2005

TO: Internal File

THRU: Pamela Grubaugh-Littig, Permit Supervisor

THRU: Pete Hess, Environmental Specialist III, Team Lead

FROM: Jerriann Ernstsens, Ph.D., Environmental Specialist, Biologist

RE: Pace Canyon Fan Portal, Canyon Fuel Company, Dugout Mine, C/007/0039, Task #2104

SUMMARY:

The Division received an amendment in January 2005 that addresses the Pace Canyon fan portal area. This memo describes the review of the biology and cultural sections for the first version of the amendment dated January 2005.

This proposed project would increase the disturbance area by 2.7 acres. The acreage and section numbers do not include transportation or power-line corridors.

The Dugout Mine is in Carbon County, Utah. The 7.5 Minute Quadrangle maps that cover the permit area are Mount Bartles (Geological Survey of the U.S. Department of the Interior). The proposed Pace Canyon area includes Township 13 South and Range 13 East with Section 30.

The Division is implementing the plan to develop Master TAs for all coal mines. This review includes examination of biological- and cultural-related information as it relates to the Pace Canyon amendment. The Division will enter the final review for this amendment into the Master TA for the Dugout MRP.

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TECHNICAL ANALYSIS:

GENERAL CONTENTS

PERMIT APPLICATION FORMAT AND CONTENTS

Regulatory Reference: 30 CFR 777.11; R645-301-120.

Analysis:

The Mine and Reclamation Plan (MRP) does not meet R645-301-121.100 and R645-301-121.200 because there is a missing explanation page for one of the supporting documents and there is unclear information in the Biology chapter or archeology section. See “Findings” for complete list of deficiencies.

The MRP includes many different volumes, including the following “stand-alone” documents (as of January 2005):

- “Dugout Canon Mine – Leach Field Addendum A-1” (LFA, March 2001)
- “Refuse Pile Amendment – Dugout Canyon Mine” (RPA, January 2003)
- “Methane Degassification Amendment” (MDA, 2003/2004).

The “stand-alone” volumes provide exclusive information, supporting documents, and maps for each proposed project. The current “Pace Canyon Fan Portal” amendment is not a stand-alone document. The Permittee provided a current TES list and copied requested information (MSO survey reports) from certain stand-alones to the MRP. The Permittee will incorporate the final approved amendment to the MRP.

Findings:

Information provided in the plan does not meet the minimum Permit Application Format and Contents in General Contents requirements of the regulations. Prior to approval, the Permittee must act in accordance with the following:

R645-301-121.200, *The Study To Determine The Effects Of Coal Development On Wildlife In Southeastern Utah* (1979-1981; Vol. 3, App. 3-2) has the following missing pages: 1-10 and 12-14. The Permittee stated that their copy does not include the missing pages, however, agreed to place pages in their place noting the missing pages. The Permittee must add this explanation page prior to the “Abstract”. • The Permittee describes the big game for the Pace fan site differently than illustrated on Plate 3-2 (Vol. 1). The Permittee must clarify and

provide documentation that supports the statements on page 3-17. • The MRP states that habitat that may be “affected” will not impact the survival of amphibians. This statement was cited from Dalton (et. al 1990), but this reference is not in the reference list in the back of chapter 3 or in the appendices (Vol. 3). The Permittee must include the document in the MRP or reference the document in the reference list. • The Permittee states that the 2004 raptor survey map is in the Division’s confidential files. The Division has no record of the 2004 map. The Permittee might have meant the 2003 survey map is in confidential. The Permittee must clarify the location of the 2004 map or change the referenced year (p. 3-16). • The Permittee describes short-term and possible long-term impacts to two species (mollusk [*Physella virgata*] and tiger salamander) that may be dependent on local water resources. The Permittee discusses mobility and mortality of these species as well as notes that there is no documentation showing subsidence impacts these species within the permit area. The statement may lead the reader to assume that scientist have evaluated the impacts of subsidence on these species within the permit area. The Permittee must either remove these statements or provide documentation or a citation supporting the statements and projections of impacts to these species from drought and drought-related subsidence. Supporting information must supplement the associated information in section 332. • The MRP refers to a letter in App. 3-3 for discussion on exclusionary periods during mining activities. This letter only applies to the mitigation project implemented because of the need to drill during the exclusionary period for the northern saw-whet owl. It does not provide general agreements to adhere to exclusionary periods for the northern saw-whet owl or other wildlife species. The Permittee must present the related paragraph (Sec. 301-358, p. 3-54) to more clearly state the intentions of the letter. • The discussions throughout the MRP on ripping, gouging, incorporating hay during gouging or mulching are difficult to follow. In chapter three, the Permittee emphasizes ripping the soil to 6-24 inches (Vol. 1, p. 3-37) and gouging areas too steep to rip. But, later states reclamation will include gouging all areas regraded and covered with soil (Vol. 1, p. 3-49). In chapter two and App. 7-12, the Permittee emphasizes gouging and incorporating hay during gouging (App. 7-12, Attachment 2). The Permittee must clarify throughout the MRP whether the reclamation project will include ripping, gouging, applying hay during earthwork, or all three (R645-301-121.200). • The Permittee must reference the correct figure (5-3 not 5-4) for the reclamation timetable (Vol. 1, p. 3-34).

REPORTING OF TECHNICAL DATA

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Analysis:

The MRP meets R645-301-130 because qualified professionals conducted or directed the surveys and analysis for the supporting biologic- and historic resource- related documents.

The Pace fan amendment includes confidential documents (App. 4-3). The Permittee must submit all amendments that have confidential documents in two separate folders and mark the folder containing the confidential document as “Confidential” (R645-301-124.330).

There are other mislocated confidential documents in certain volumes. The Permittee will attend to these documents as a response to the Division’s request dated December 8, 2004.

Findings:

Information provided in the plan does not meet the minimum Reporting of Technical Data in General Contents requirements of the regulations. Prior to approval, the Permittee must act in accordance with the following:

R645-301-124.330, The Pace fan amendment includes confidential documents (App. 4-3). The Permittee must submit all amendments that have confidential documents in two separate folders and mark the folder containing the confidential document as “Confidential”.

ENVIRONMENTAL RESOURCE INFORMATION

Regulatory Reference: Pub. L 95-87 Sections 507(b), 508(a), and 516(b); 30 CFR 783., et. al.

HISTORIC AND ARCHEOLOGICAL RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.12; R645-301-411.

Analysis:

The MRP meets R645-301-411 regulations pertaining to historic resources. The MRP (Vol. 3, App. 4-1; see Confidential Files in Division PIC room after June 2005) includes numerous evaluations of historic resources that focus on the permit area. It also includes narratives and maps of historic resources that may be included in or eligible for inclusion in the

National Register. There is proof of previous coordination efforts and clearances from the SHPO.

It is important for the Permittee to understand that workers must avoid all historic resources during the life of the project. In the event that construction or operations uncovers historic resources, the Permittee must stop all work near the resources and notify the Division. At that time, DCM, DOGM, and other appropriate parties will develop a strategy to avoid the site or mitigate the impacts.

Findings:

Information provided in the plan meets the minimum Environmental -Historic and Archeological Resource Information requirements of the regulations.

VEGETATION RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.19; R645-301-320.

Analysis:

The MRP meets R645-301-321 because there is adequate discussion of plant communities observed within the permit area. The MRP contains many supporting documents on vegetation for the permit area. The baseline vegetation information is adequate for assessing reclamation potential and success as well as productivity values for the surface area affected by mining operations.

Volume 3, App. 3-1 and 3-4 contains vegetation surveys of the specific areas of permit area. The Refuse Pile volume contains the vegetation study (Attachment 3-1), maps (Figs. 3-1 and 3-2), and photos for the disturbance related to the refuse pile site. The volume for the degas well amendment also contains site-specific information on vegetation. Volume 1, Plate 3-1 is a vegetation map showing community types for the main mine site.

The vegetation map (Plate 3-1) delineates vegetative communities within and surrounding the permit area. The permit area ranges in elevation from 7000 to 8600 feet. The MRP describes vegetative cover, production and shrub density of the Douglas fir, mixed conifer, pinyon juniper, deciduous streambank, and shrub/grass/juniper communities within the permit and adjacent areas.

There are areas that were previously disturbed from past mining and coal exploration activities. The MRP describes these areas as once dominated by pinyon and juniper with a potential production of 800 pounds per acre for the main facilities site. The MRP provides

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other production estimates that are project specific.

The MRP provides the results of the vegetation surveys of the riparian and pinyon juniper *range sites* selected for the standards of success. These range sites are located in Fish Creek Canyon a few miles west of Dugout Canyon. The 1991 (BLM) and 1997 (NRCS) survey results showed the riparian community as “fair to poor” and “fair”, respectively. Documentation of a site visit in 1996 suggests the riparian area had not been as heavily grazed as reported in the past but, the area was still in a somewhat degraded condition. The riparian community type is considered the most productive in terms of forage availability in the area. Further analysis of the riparian and pinyon juniper sites are in the 1998 vegetation survey.

The Permittee should recognize that one of the requirements for using range sites for the standard of success is that the site must be declared as fair or better condition.

Dr. Patrick Collins conducted the vegetation survey for the Pace Canyon fan facilities project (Vol. 3, App. 3-4). The area of the proposed fan site was previously disturbed from historic mining in the area and never reclaimed. The Permittee plans to use a reference area instead of R645-356.250 or a range site for the standard of success for this project. The reference area has not been previously disturbed. The surveyor did not assign similarity indices between the two sites most likely because indices are not required under R645-356.250, which is the minimum vegetation standard for this site. The Permittee plans to bring this predisturbed site up to the required success standards associated with reference area criteria (refer to R645-301-356.110). The Permittee stated that it is Canyon Fuel policy to return the land to better conditions prior to disturbance where possible. The Permittee should be commended for going beyond the required standard.

Findings:

Information provided in the plan meets the minimum Environmental - Vegetation Resource Information requirements of the regulations.

FISH AND WILDLIFE RESOURCE INFORMATION

Regulatory Reference: 30 CFR 784.21; R645-301-322.

Analysis:

GENERAL WILDLIFE

The MRP meets R645-301-322 because it provides narrative, supporting documentation, or maps on ungulates, bats, aquatics, raptors, migratory birds, and reptiles.

DWR considers all riparian areas as critical value for wildlife and R645-301-322.220 states that cliffs that support raptors are habitats of unusually high value.

The document *Study To Determine The Effects Of Coal Development On Wildlife In Southeastern Utah* (1979-1981; Vol. 3, App. 3-2) provides data for wildlife populations, condition, and behavior within the Sage-point Dugout Canyon project. Although this study provides valuable site-specific information, the Permittee should not consider it as baseline information for the current mine plan. The permit and facilities areas are much smaller than they were in an earlier proposal.

Ungulates

The MRP (Vol. 3, App. 3-2) provides general information on many wildlife species including ungulates. A letter in the MRP (Vol. 3, App. 3-3) marginally details elk and deer range in the region including the permit area. However, there is a more descriptive deer and elk habitat map (Plate 3-2) in confidential. This map belongs in confidential because it also illustrates raptor nest locations.

Plate 3-2 illustrates that the Pace fan and SITLA lease project sites are within the area classified as critical summer deer habitat as well as high value year-long elk habitat. The Permittee describes the big game for the Pace fan site differently than illustrated on Plate 3-2 (Vol. 1). The Permittee must clarify and provide documentation that supports the statements on page 3-17 (R645-301-121.200).

The Permittee states that the local area supports yearlong pronghorn range in the salt desert shrub community of the lower elevation ranges along the Clark Valley Road.

Bats

A previous bat survey includes information on bat species and numbers as well as roosting and foraging habits near a portion of Dugout Creek (Vol. 3, App. 3-3). The Permittee commits to conducting a 2005 (SITLA Lease area) and future bat surveys (along with raptor surveys) in cliff habitat before subsidence (Vol. 1, Sec. 322, p. 3-19).

Aquatics

The MRP does not include fish or macroinvertebrate surveys. There are water resources within the Pace Creek and SITLA lease areas that include small stretches of channels considered as ephemeral or perennial within the permit area. The Division, in consultation with DWR, does not recommend surveying for macroinvertebrates or fish within these stretches at this time.

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Amphibians and Reptiles

The MRP does not include amphibian and reptile surveys that are project specific, but has general information on a variety of species, including reptiles (Vol. 3, App. 3-2).

The MRP states that habitat that may be “affected” will not impact the survival of amphibians. This statement was cited from Dalton (et. al 1990), but this reference is not in the reference list in the back of chapter 3 or in the appendices (Vol. 3). The Permittee must include the document in the MRP or reference the document in the reference list (R645-301-121.200).

Raptors

The results of the 2003 survey showed six nests that were either tended or active. None were in T13S R13E Section 30, which includes the site for the Pace fan project. The Environmental Assessment (Vol. 3, App. 3-4) supports that there are no raptor nests within the Pace project area. The six active nests for 2003 included one prairie falcon (#6) and two raven nests (#14 and 1303). There were no active or tended golden eagle nests in 2003. DWR states that one possible reason for the low nesting activity of all raptors over the past few years is drought.

The 2004-raptor survey apparently covered the Pace and SITLA project areas. The MRP states that the results were positive for two golden eagle nests approximately 1 mile from the Pace project site. This distance is not within the 0.5 buffer zone. The Division will verify the distance once the Permittee submits the Annual Report.

The Permittee states that the 2004 raptor survey map is in the Division’s confidential files. The Division has no record of the 2004 map. The Permittee might have meant the 2003 survey map is in confidential. The Permittee must clarify the location of the 2004 map or change the referenced year (p. 3-16; R645-301-121.200).

The Permittee commits to conduct ground surveys for goshawks in areas with suitable habitat and planned for disturbance for mining facilities. DWR evaluated sites, during the annual flyover) near DUGO104 and DUGO204 exploration holes for goshawk habitat. Logging in that area, however, has compromised the dense canopy habitat making the area unsuitable for goshawks.

THREATENED, ENDANGERED, AND SENSITIVE ANIMAL/PLANT SPECIES

In order for a person to conduct official surveys, they must fulfill the following sequential requirements: belong to the permit holding corporation, take the species-specific course and

exam, submit the application for permit to the USFWS, and record name to the corporate permit records.

The MRP meets R645-301-322 because there is adequate discussion, supporting documentation, and maps on TES species that could occur within or adjacent to the permit area.

The MRP contains current USFWS and Utah Natural Heritage Program lists of TES species that could occur in Carbon County, Utah. The Degassification Amendment contains a copy of the corporate TES permit (exp. 12/31/05) for EIS with Mel Coonrod as principal officer. The corporate permits shows that Tom Paluso is authorized to conduct Mexican Spotted Owl (MSO) surveys.

The MRP contains many supporting documents on TES species. The volume - Methane Degassification Amendment provides results of a literature search and ground-truth surveys for many TES species, particularly plant species. The “withdrawn” volume - Degas Wells MW-6 and -8 (Attachment 3-2) also provides results of ground-truth surveys for twenty-seven plant and two animal species. The volume - Degas Wells MW-6 and -8 (Attachment 3-3) contains the David Willey report on (MSO).

All supporting documents on TES plant species show that there were no observations of threatened or endangered species. The documents show, however, that the permit area supports habitat for the following TES plants: canyon sweetvetch (*Hedysarum occidentale* var. *canone*), tufted cryptantha (*Cryptantha caespitosa*), *Helenium hymenoxys* (*Hymenoxys helenioides*), and Graham beardtongue (*Penstemon deaveri*). The Division is aware of a large population of canyon sweetvetch in Fish Creek Canyon, a population along Dugout Creek approximately one-half mile below the gate, a population along Pace Creek near the fan facility site, and that the plant could occur in other parts of the permit area.

The TES supporting documents also show that the permit area supports habitat for the following TES animals: MSO, black-footed ferret, bald eagle, loggerhead shrike, as well as peregrine falcon. No confirmed sightings of black-footed ferrets have occurred within Carbon County during 1995, 1996, and the first quarter of 1997 (DWR, Sec. 322.200).

For the Pace fan project, DWR provided an updated TES list and reported that there are no records of occurrence for any TES species in T13 S, R13 E, S17, 19-21, 28-30. They mentioned, however, that there are recent records of occurrence in the vicinity for ferruginous hawk (over 2 miles from area) and historical records of occurrence for Northern goshawk (approximately 4 miles from area).

Mexican Spotted Owl (MSO)

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The Permittee conducted a two-year calling survey in 2003 and 2004 that adequately covers the required evaluation for the Pace fan and SITLA lease projects. The results for both surveys show that there were no MSO observed, but show there were northern saw-whet and great horned owls. The Division does not consider that additional MSO ground-truthing or calling surveys are necessary for the Pace fan or SILTA lease projects.

For future reference, the Division would like the Permittee to know that calling surveys are only required after ground-truthing results are positive for MSO. The cost and time involved in the ground-truthing surveys are considerably less than for the calling survey.

Findings:

Information provided in the plan meets the minimum Environmental - Fish and Wildlife Resource Information requirements of the regulations.

MAPS, PLANS, AND CROSS SECTIONS OF RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.24, 783.25; R645-301-323, -301-411, -301-521, -301-622, -301-722, -301-731.

Analysis:

Archeological Site Maps

The MRP meets R645-301-411.141 because there are archeological maps showing known resource locations within the permit area. These maps are in the Confidential Files (Division PIC room after June 2005).

Vegetation Reference Area Maps

The MRP meets R645-301-323.100 because vegetation maps illustrate community types within the disturbed and reference areas as well as illustrate the location of reference areas. The Division typically requests two vegetation maps: one that shows the entire area (Plate 3-1 is adequate) and one that details the reference and disturbed areas. Not all the reference areas are illustrated on a single map because the Dugout Mine is spread over an expansive area. Plate 3-1 shows most of the reference areas or range sites, while Volumes - Refuse Pile Amendment and Methane Degassification Amendment show project specific reference areas.

The Permittee plans to use reference areas for certain projects, but use range sites for other projects including the main facilities area.

Reclamation maps show the location of a habitat enhancement mitigation project of the

riparian area along Dugout Creek.

Findings:

Information provided in the plan meets the minimum Environmental - Maps, Plans, and Cross Section Resource Information requirements of the regulations.

OPERATION PLAN

PROTECTION OF PUBLIC PARKS AND HISTORIC PLACES

Regulatory Reference: 30 CFR 784.17; R645-301-411.

Analysis:

There are no known public parks or historic places within the permit area that require protection.

Findings

Information provided in the plan meets the minimum Operations - Protection of Public Parks and Historic Places requirements of the regulations.

FISH AND WILDLIFE INFORMATION

Regulatory Reference: 30 CFR Sec. 784.21, 817.97; R645-301-322, -301-333, -301-342, -301-358.

Analysis:

The MRP does not meet R645-301-333, R645-301-342, or R645-301-358 because the Permittee's plans do not consider tree-nesting raptors or wildlife exclusionary periods during construction and reclamation phases.

Protection and Enhancement Plan

The Permittee commits to a wildlife awareness and protection training in its annual training curriculum for all employees and haulage contractors, constructing power lines according to Electric Transmission System's guidelines, establishing stream buffer zones, installing protective fencing for wildlife, and reclaiming as soon as practical.

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Ungulates

The Pace fan and adjacent areas support both summer and winter big game habitat. The Permittee must comply with exclusionary periods during construction and reclamation phases. The general exclusionary periods are May 1 - July 1 for calving and November 1 – May 15 for wintering. The Division may remove this requirement if the Permittee can provide documentation from DWR that proves the area is not used by big game during these exclusionary periods. (R645-301-333).

Bats

The Permittee implemented a vegetation mitigation project in exchange for impacting local bat populations around 1997. The Permittee planted willows in the stream channel above the mine site with a success rate of about 75% as of 2001. The project is on going with the need to transplant additional willows at time of final reclamation. The MRP details this mitigation project (Vol. 1, Sec. 322.200, p. 3-21).

Raptors

The MRP states that all power lines within disturbed areas will be raptor safe. The Permittee commits to following the publication "Power Line Contacts by Eagles and Other Large Birds".

The 2004 Northern saw-whet owl nesting box mitigation project involved the Permittee, DWR, and Division putting up twenty-six nesting boxes designed to attract the Northern saw-whet owl and other small-medium sized cavity nesting birds.

The MRP states that the 2003/2004 MSO results were negative for goshawks. The survey reports do not clearly state that this species was surveyed. Although the SITLA lease project does not include surface disturbance, the Pace fan project does include 2.7 acres of disturbance. The Permittee must either conduct a ground survey for this species as well as the northern saw-whet owl or provide documentation showing this area does not support habitat for either species. The Permittee must comply with exclusionary periods if results are positive for either species during the years of construction or reclamation. (R645-301-333).

Endangered and Threatened Species

Colorado River Fish

Adverse effects of mining on water quantity to the Colorado River drainages do affect four Colorado River endangered fish species (Colorado pikeminnow, humpback chub, bonytail chub, and razorback sucker). The USFWS considers water depletion to the Colorado River drainage as a potential jeopardy to these endangered fish. Water users may be required to mitigate if the overall water consumption is greater than 100 acre-feet per year.

The MRP provides estimates of water consumption from the following sources: culinary, ventilation, coal producing consumption, coal moisture loss, sediment pond evaporation, and dust suppression with an estimated total of 102.53 acre-ft. The estimate for water discharge is 405.63 acre-ft. The estimated overall annual water budget, therefore, is a net gain of 303.1 acre-ft. as of February 2005 that includes the Pace fan and SITLA projects.

The Division may require the Permittee to resubmit water consumption calculations with new amendments that include significant changes to the permit or surface disturbance areas.

Bald and Golden Eagles

There are many raptor nests within the Dugout properties including golden eagles. There are no known bald eagle nests. There are two golden eagle nest approximately 1-mile from the Pace fan project. The Permittee commits to conducting annual raptor surveys to obtain baseline data prior to mining disturbances including subsidence of cliff habitat (Vol. 1, Sec. 322, p. 3-13).

Wetlands and Habitats of Unusually High Value for Fish and Wildlife

Robert Thompson, a Forest Service botanist, states that there are no known wetlands within the main facilities area. It is possible a narrow band of wetland exists along the stream corridor, but the concern for disturbance (during the review process at that time) was the stream and its associated riparian area rather than possible wetland.

The Permittee describes short-term and possible long-term impacts to two species (mollusk [*Physella virgata*] and tiger salamander) that may be dependent on local water resources. The Permittee discusses mobility and mortality of these species as well as notes that there is no documentation showing subsidence impacts these species within the permit area. The statement may lead the reader to assume that scientist have evaluated the impacts of subsidence on these species within the permit area. The Permittee must either remove these statements or provide documentation or a citation supporting the statements and projections of impacts to these species from drought and drought-related subsidence. Supporting information must supplement the associated information in section 332 (R645-301-121.200).

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Findings:

Information provided in the plan does not meet the minimum Operations - Fish and Wildlife Information requirements of the regulations. Prior to approval, the Permittee must act in accordance with the following:

R645-301-333,

- The Pace fan and adjacent areas support both summer and winter big game habitat. The Permittee must comply with exclusionary periods during construction and reclamation phases. The general exclusionary periods are May 1 - July 1 for calving and November 1 – May 15 for wintering. The Division may remove this requirement if the Permittee can provide documentation from DWR that proves the area is not used by big game during these exclusionary periods.
- The MRP states that the 2003/2004 MSO results were negative for goshawks. The survey reports do not clearly state that this species was surveyed. Although the SITLA lease project does not include surface disturbance, the Pace fan project does include 2.7 acres of disturbance. The Permittee must either conduct a ground survey for this species as well as the northern saw-whet owl or provide documentation showing this area does not support habitat for either species. The Permittee must comply with exclusionary periods if results are positive for either species during the years of construction or reclamation.

VEGETATION

Regulatory Reference: R645-301-330, -301-331, -301-332.

Analysis:

The MRP meets R645-301-330, R645-301-331, and R645-301-332 because the Permittee plans to disturbed smallest areas possible, apply interim reclamation practices when applicable, and mitigate for subsidence-related impacts.

Findings:

Information provided in the plan meets the minimum Operations - Vegetation requirements of the regulations.

RECLAMATION PLAN

GENERAL REQUIREMENTS

Regulatory Reference: PL 95-87 Sec. 515 and 516; 30 CFR Sec. 784.13, 784.14, 784.15, 784.16, 784.17, 784.18, 784.19, 784.20, 784.21, 784.22, 784.23, 784.24, 784.25, 784.26; R645-301-231, -301-233, -301-322, -301-323, -301-331, -301-333, -301-341, -301-342, -301-411, -301-412, -301-422, -301-512, -301-513, -301-521, -301-522, -301-525, -301-526, -301-527, -301-528, -301-529, -301-531, -301-533, -301-534, -301-536, -301-537, -301-542, -301-623, -301-624, -301-625, -301-626, -301-631, -301-632, -301-731, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-732, -301-733, -301-746, -301-764, -301-830.

Analysis:

The discussions throughout the MRP on ripping, gouging, incorporating hay during gouging, or mulching are difficult to follow.

Areas recommended for fertilizer application will receive fertilizer by cyclone spreader, hydroseeder, or other equipment.

The reclamation plan does not include irrigation. The Division does not anticipate the necessity to irrigate as long as the Permittee uses water-harvesting methods, such as gouging.

Findings:

Information provided in the plan meets the minimum Reclamation - General Requirements of the regulations.

PROTECTION OF FISH, WILDLIFE, AND RELATED ENVIRONMENTAL VALUES

Regulatory Reference: 30 CFR Sec. 817.97; R645-301-333, -301-342, -301-358.

Analysis:

The MRP meets R645-301-342 and R645-301-358 because the Permittee provides adequate enhancement and protection measures for fish, wildlife, and habitat during the reclamation or postmine phases.

The MRP refers to a letter in App. 3-3 for discussion on exclusionary periods during mining activities. This letter only applies to the mitigation project implemented because of the need to drill during the exclusionary period for the northern saw-whet owl. It does not provide

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general agreements to adhere to exclusionary periods for the northern saw-whet owl or other wildlife species. The Permittee must present the related paragraph (Sec. 301-358, p. 3-54) to more clearly state the intentions of the letter (R645-301-121.200).

The Permittee considers that reclamation of the disturbed area will enhance the wildlife habitat because the site had been previously disturbed and never reclaimed. Furthermore, that the many of the seed mix and transplant species are the same species as those in undisturbed, adjacent areas. Revegetating the area, therefore, will provide more grazing habitat for the wildlife.

The Permittee will adhere to the regulations aimed to protect TES, eagles, and raptors from mining impacts (in reference to R645-301-358).

Findings:

Information provided in the plan meets the minimum Reclamation - Protection of Fish, Wildlife, and Related Environmental Values requirements of the regulations.

CONTEMPORANEOUS RECLAMATION

Regulatory Reference: 30 CFR Sec. 785.18, 817.100; R645-301-352, -301-553, -302-280, -302-281, -302-282, -302-283, -302-284.

Analysis:

General

The Permittee plans to reclaim all disturbed areas as contemporaneously as possible within the constraints of seasonal weather.

Findings:

Information provided in the plan meets the minimum Reclamation - Contemporaneous Reclamation requirements of the regulations.

REVEGETATION

Regulatory Reference: 30 CFR Sec. 785.18, 817.111, 817.113, 817.114, 817.116; R645-301-244, -301-353, -301-354, -301-355, -301-356, -302-280, -302-281, -302-282, -302-283, -302-284.

Analysis:

Revegetation: General Requirements

The MRP does not meet R645-301-330, R645-301-331, and R645-301-332 because the Permittee does not provide an adequate reclamation plan or discussion of how reclamation measures will meet the performance standards.

The seed mixes for interim and final reclamation are not the same. All seed mixes are shown in Section 341.200 (Vol. 1, p. 3-34). The interim seed mix includes a blend of native grasses. For final reclamation, the Permittee plans to use habitat-specific seed mixes, containerized (or whip) plants, or both. The Permittee will apply the seed using broadcast or drilling techniques.

The transplants will augment seeding in areas commonly difficult for seed to germinate e.g., steep slopes, southern exposures and extremely windy sites. Transplants will contribute to soil stabilization (refer to R645-301-353.140) and wildlife habitat enhancement (refer to R645-301-342.100). The MRP provides details of the planting procedures for the live plants (Vol. 1; Sec. 341.200; p. 3-38).

The Permittee will use Seed Mix #1 for most of the Dugout Mine disturbed area. The disturbed riparian areas will receive Seed Mix #2. There are probably project-specific seed mixes for exploration, leach field, refuse pile, and degassification projects. The Division did not include re-review of these documents during this 2005 review.

Reclamation for the Pace fan project will use Seed Mix #3, which includes grasses and shrub species observed within the reference area (Collins 2004). This mix includes four grasses and two shrubs, but does not include forbs. The Permittee mentions that although forbs were observed within the reference area, they were not included in the seed mix because the forb species were not available.

The reclamation phase of this project will occur some years from 2005, which the species availability will probably change by then. The Permittee plans to use the reference area as a standard for success. The Division considers that the Permittee will most likely not reach success for similarity of life forms without planting forbs. The Permittee must include forbs in Seed Mix #3 to more effectively replace the diversity found on the reference site (R645-301-356.110).

Revegetation: Timing

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Figure 5-3 shows the general reclamation timetable. The earthwork and revegetation practiced will occur nearly simultaneously until completion. The schedules for planting are during normal planting seasons.

Revegetation: Mulching and Other Soil Stabilizing Practices

The reclamation of Dugout includes conducting earthwork and preparing the growth medium. The discussions throughout the MRP on ripping, gouging, incorporating hay during gouging, or mulching are difficult to follow. In chapter three, the Permittee emphasizes ripping the soil to 6-24 inches (Vol. 1, p. 3-37) and gouging areas too steep to rip. But, later states reclamation will include gouging all areas regraded and covered with soil (Vol. 1, p. 3-49). In chapter two and App. 7-12, the Permittee emphasizes gouging and incorporating hay during gouging (App. 7-12, Attachment 2). The Permittee must clarify throughout the MRP whether the reclamation project will include ripping, gouging, applying hay during earthwork, or all three (R645-301-121.200). The Permittee must specify the use of Utah certified noxious weed free hay or straw (R645-301-353.250).

The Permittee will apply wood fiber mulch at 2000 pounds per acre and secure with a tackifier (Vol. 1, p. 3-42). The Permittee must apply adequate tackifier amounts to bring the plan to current standards (R645-301-341). The Division recommends 60 pounds per acre or according to manufacturer instructions.

Revegetation: Standards For Success

The Permittee will follow the sampling requirements and analysis identified in the Division's "Vegetation Information And Monitoring Guidelines" (Vol. 1, Sec. 356). Table 3-3 shows the reclamation-monitoring schedule. The Permittee will conduct yearly qualitative vegetation evaluations as well as conduct quantitative vegetation surveys throughout the 10-year responsibility period. The Permittee plans to use reference areas and *range sites* for the standards of success.

The Permittee will meet the required plant cover, woody plant density, and productivity standards. The Permittee will meet diversity standards with application and successful growth of the final seed mix and transplants. The Division typically coordinates with other agencies and sets the standard stocking rates for wildlife habitat for each habitat. The MRP discusses collaboration between the Permittee and agencies for willow stocking rates, but not for other species. The Permittee must provide proof of communications with agencies for the given stocking rates associated with Seed Mix #1 and #2 (Vol. 1, p. 3-34 to 3-37; R645-301-356.231).

The husbandry practices approved by the Division will be applied as needed.

Findings:

Information provided in the plan does not meet the minimum Reclamation - Revegetation requirements of the regulations. Prior to approval, the Permittee must act in accordance with the following:

R645-301-341, The Permittee must apply adequate tackifier amounts to bring the plan to current standards. The Division recommends 60 pounds per acre or according to manufacturer instructions

R645-301-356.110, The Permittee must include forbs in Seed Mix #3 to more effectively replace the diversity found on the reference site.

R645-301-356.231, The Permittee must provide proof of communications with agencies for the given stocking rates associated with Seed Mix #1 and #2.

R645-301-353.250, The Permittee must specify the use of Utah certified noxious weed free hay or straw

RECOMMENDATIONS:

Do not approve the amendment until the Permittee addresses all deficiencies.

The MRP provides the results of the vegetation surveys of the riparian and pinyon juniper *range sites* selected for the standards of success. These range sites are located in Fish Creek Canyon a few miles west of Dugout Canyon. The 1991 (BLM) and 1997 (NRCS) survey results showed the riparian community as “fair to poor” and “fair”, respectively. The Permittee should recognize that one of the requirements for using range sites for the standard of success is that the site must be declared as fair or better condition. The values of success provided in the MRP (Vol. 1, Sec. 356, p. 3-50) may not be acceptable to the Division because of the site condition. The Permittee and Division must consider discussing this possible issue.

The Permittee may accelerate the recovery period through the application of cryptogamic soil- using the best management practices (BMP) known at the time of reclamation. One of the cryptogamic soil-related BMP currently known is to separately salvage the cryptogams prior to soil disturbance. Removal of these cryptogams requires a qualified botanist or soilist to oversee this salvaging process. The practice would include resspreading cryptogams to the soil surface. One of the best times to salvage cryptogams is in the late fall so the cryptogams remain cool (a preferred growth condition) and have less of a chance of drying out following transplant.

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The Division recommends salvaging cryptogams prior to disturbance, adding them to the hydromulch, and redistributing them to the topsoil pile. If soil crusts form on topsoil stockpiles, the Permittee would collect the colonies from the topsoil pile and apply two ounces of sifted soil crusts to each load of Wood fiber mulch during reclamation.

The Division recommends additional quantitative surveys to those stated in the regulation (refer to R645-301-357.200). The Permittee plans to survey many times during the responsibility phase. The Division, however, provides some recommendations that may help the Permittee achieve Phase II and III bond release. The Permittee may consider rearranging some of the monitoring schedules to include monitoring shrub density at years 4 and 8 following the last augmentation. The 4th and 8th year shrub density surveys are for areas designated as wildlife for the PMLU. The 4th year results do not need to meet the 90% requirement, but the survey is needed to demonstrate that at least 80% of the shrubs and trees have been in place for 60% of the responsibility period (refer to R356.232). The 8th year survey is needed to demonstrate that no shrubs or trees have been in place for less than two growing seasons (refer to R356.232).